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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,970	06/01/2001	James M. Reuter	P01-3667	3048

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EXAMINER

NGUYEN, TRONG NHAN P

ART UNIT	PAPER NUMBER
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2152

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/872,970	REUTER ET AL.	
	Examiner	Art Unit	
	Jack P Nguyen	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-40 are being examined.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of copending Application No. 09/872962. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claims 2, 3, 8-10, 12, 13, 16, 18-21, 23, 26, and 29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-11 and 13 of copending Application No. 09/872962. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the copending application have all the limitations in the claims of the present application. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 3, 4, 5, 8-10, 13, 16, 19, 21, 25, 26, 29, and 33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable

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over the following: claims 4, 6-8, 10, 11, 17, 18, 19, and 21 of U.S. Patent No. 6,775,790; claims 1 and 4, of U.S. Patent No. 6,745,207; claims 1, 2, 4, 6, 7, 8, 12, 17, 20, and 21 of Patent 6,772,231; and claims 1, 2, 3, 5, 6, 7, 10-12, 14, and 15 of Patent 6,718,404. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the patent have all the limitations in the claim of the present application.

Specification Objections

The specification fails to disclose the block of data is about 1 MB as claimed in claim 15. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that the word "about" fails to point out what is included or excluded by the claim language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al, 6,260,120 (Blumenau hereafter).

As per claim 1, Blumenau teaches a virtual storage system (20, fig. 1, col. 24, lines 15-16) for linking a host (22, fig. 1) to one or more storage devices (28, 29, fig. 1, col. 9, lines 15-19; storage volumes are mirrored with each other) over a network (21, fig. 1), comprising: a host controller (61, fig. 4; host controller is functionally equivalent to an agent) connected to the host (22, fig. 4), the host controller storing a first table (fig. 30, col. 30, lines 53-55), the table having entries to map the virtual disk positions to locations on the storage devices (col. 32, lines 43-45); a storage controller (27, fig. 4; storage controller is a component of a cache storage subsystem) coupled to the agent, the storage controller having non-volatile memory for storing a second table (80, fig. 4; fig. 5; col. 14, lines 27-31), the host controller receives mapping updates from storage controller (col. 25, lines 1-7) and uses the storage controller's mapping table when its local copy is unavailable during an input/output (I/O) operation, the host accesses one of the entries in the first table to determine one of the storage device locations (col. 32, lines 45-47). Blumenau does not explicitly teach the host controller having volatile memory for storing first table. However, it is well known in the art use volatile memory (RAM) in computing devices to store temporary data. It would have been obvious to one of ordinary skill in the art to use volatile memory to ensure old, residual data in memory is erased and refreshed with new, updated data when the computing device

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first powered on.

As per claims 2 and 3, Blumenau teaches the table entries further include an indication whether a private state is activated such that the private state for a table entry becomes activated when that table entry contains no shareable mapping information. Data in the particular storage location is restricted from shared, read/write access (fig. 8). Blumenau does not explicitly teach invalid state. However, it would have been obvious to one of ordinary skill in the art to modify the teachings of Blumenau to restrict access to a particular portion of the storage location by making the entry state invalid. One of ordinary skill in the art would have been motivated to add this function to restrict unauthorized access to private data that the user do not want others to see or share.

As per claims 4-5, Blumenau teaches the table entries further include an indication of whether a no-write state is activated such that the no-write state for one of the entries becomes activated when data cannot be written to the storage location contained in that entry (col. 19, lines 15-21).

As per claims 6-7, Blumenau teaches the communication channel (21, fig. 1) to couple the agent and the controller, wherein communication channel employs a data transfer protocol to transport messages on the communication channel (col. 2, lines 19-22).

As per claims 8-11, Blumenau teaches the entries include an offset, wherein the offset includes logic unit number identifier (fig. 25, col. 27, lines 23-24; virtual disk mapping table) and a block identifier (fig. 34), and the entries further includes a segment of virtual disk positions (fig. 8).

Claims 12-21 are rejected for similar reasons as claims 1-5 and 8-11. Blumenau further teaches a plurality of variables such as private/share (fig. 8) and write/no-write Boolean states of the entry (col. 19, lines 15-21). Blumenau also teaches the data frame (block) is about 1 MB (fig. 34).

As per claims 22-23, Blumenau teaches the states include a zero state (col. 22, lines 10-12; null state initially has a zero or null value) and an error state (col. 12, line 20).

As per claims 24-25, Blumenau teaches a method for accessing the logical volume on a virtual disk (26, fig. 1) by the host controller (61, fig. 4; host controller is functionally equivalent to agent) coupled to the host (20, fig. 1) within a network (21, fig. 1), comprising: specifying a block (logical unit number or LUN) on the virtual disk (through virtual port – volume 1) within the operation; accessing a table mapping (fig. 30) the block to a storage location on a storage device; issuing a corresponding operation to the storage device (part of storage subsystem), wherein the corresponding operation correlates to the operation on the virtual disk; completing the corresponding

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operation; and presenting the completed corresponding operation to the virtual disk (fig. 30, col. 30, lines 47-57; col. 22, lines 41-49).

As per claims 26-27, Blumenau teaches updating the table with a persistently-stored table residing in a non-volatile memory (88, fig. 7, col. 16, lines 27-30) and determining states of the table (fig. 8; storage controller can restrict or permit volume access by host controller by setting the flag to either private or share Boolean states).

As per claim 28, Blumenau teaches sending a fault message when the table is unable to be accessed (187, fig. 17).

Claim 29 is rejected based on similar reasons as claim 1 addressed above.

As per claim 30, Blumenau teaches the storage controller sends updated information of the entries in the mapping table to host controller (agent) (col. 22, lines 44-47; col. 24, lines 64 – col. 25, lines 7).

Claims 31-33 are rejected for similar reasons as claim 30 addressed above. Blumenau further teaches activating states within entries of the table (fig. 8). Blumenau does not explicitly teach setting a blocking flag until operations are completed. It is known the art while data transfer (writing) is taken place between a host and a particular location of the storage device, one of ordinary skill in the art would be motivated to

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refrain from accessing the same blocks of data because it may interfere with the data writing that is taken place that may corrupt the data or cause the system to "hang" until the operations are completed.

Claims 34-35 are rejected for similar reasons as claims 24-25 and 31-33 addressed above.

As per claims 36-38, Blumenau teaches the volume access mapping table has the flexibility in assigning a variable number of volumes to each group of blocks of contiguous memory locations (fig. 5, col. 15, lines 42-48).

As per claims 39-40, Blumenau teaches the table entry comprises a beginning and ending data frames (blocks) (fig. 34).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Reuter et al, 6,775,790; Reuter et al, 6,745,207 ; Reuter et al, 6,772,231 ; Reuter et al, 6,718,404 ; DeKonning, 6,671,776 ; Hoese et al, 5,941,972 ; Sanada et al, 6,742,090 ; Shepherd, 6,529,995 ; Hubis et al, 6,343,324 ; Arai et al, 5,404,478

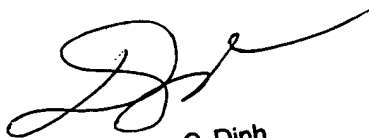
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack P Nguyen whose telephone number is (703) 605-4299. The examiner can normally be reached on M-F 8:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (703) 305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jpn



Dung C. Dinh
Primary Examiner